

# On-Line Porosity Analyzer For Optimization Of Paper And Board Production Processes

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## ABSTRACT

The on-line porosity analyzers have in recent years become a practical tool for papermakers to maximize paper quality and production profitability. The PERMI, being a fast and reliable on-line porosity analyzer from ACA Systems Oy, helps papermakers to rapidly adjust all grades to specification and carry out fast paper grade changes. The monitoring of several paper grades can accurately and reliably be measured with only one single calibration. The very fast machine direction measurement enables a new kind of control of paper and paperboard processes. Paper quality variations in the machine direction can be reduced with greater ease when a fast real paper quality measurement is available. It is easier to track the root causes of faster variations (recipes, dosing of chemicals, screen cleanings, variation in deaerator vacuum and air content etc.) Naturally, this leads to better paper uniformity, not only in porosity but also in most of the other important quality characteristics. The refining of chemical pulp as well as the postrefining of mechanical pulp can be optimized for each paper grade in spite of quality changes in the incoming pulp. The process automation system (DCS) can be equipped with a closed loop control circuit to maintain the required porosity level. The potential to save energy and increase production is remarkable and the uniformity of paper quality improves noticeably. The dosing of paper chemicals (fixatives, retention aids, and defoamers) can be monitored and optimized so that a good combination of retention, formation and drainage, as well as better runnability on the machine, can be achieved. Overdosing and the costs of the chemicals can be reduced without any risks to the process operation. The vacuum levels in the wire section (foils, vacuum rolls, vacuum boxes) can be quickly adjusted in the grade changes and therefore a good formation and dewatering with lower energy costs can be achieved.

**Figure 1** Remote control box and measuring head

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